We claim:

1. A two-part composition for promoting the transient demyelination of neurons when combined in situ, in vivo with an epitope on myelin, wherein the two parts are intended to be admixed with each other either, before administration, at the time or administration, or after administration to a mammal in need of such treatment, which comprises:
(a) one or more complement-fixing antibodies or fragments thereof, which specifically bind to an epitope of myelin; and
(b) one or more complement proteins or fragments thereof;
wherein the binding of said antibodies to myelin causes transient disruption and/or transient demyelination of myelin.

2. The two-part composition as in claim 1, wherein the composition additionally comprises one or more growth factors.

3. A composition comprising therapeutically effective amounts of the following:
(a) one or more complement-fixing antibodies or fragments thereof, which specifically bind to an epitope of myelin in mammals; and
(b) one or more complement proteins or fragments thereof;
wherein the binding of said antibodies to myelin causes transient disruption and/or transient demyelination of myelin in mammals.

4. A composition as in claim 3, wherein the composition additionally comprises one or more growth factors.

5. A solution-system for the formation of a transiently demyelinating complex on the myelin of a neuron, wherein the components can be delivered separately or together which comprises:
(a) one or more complement-fixing antibodies or fragments thereof, which specifically bind to an epitope of myelin in mammals; and
(b) one or more complement proteins or fragments thereof;
wherein the binding of said antibodies to myelin causes transient disruption and/or transient demyelination of myelin in mammals.

6. A solution-system as in claim 5, wherein the solution-system additionally comprises one or more growth factors.

7. The composition according to claim 1, 3, or 5, wherein the antibodies are monoclonal and/or polyclonal.

8. The composition according to claim 1, wherein some of the antibodies are labeled.

9. The composition according to claim 1, wherein the antibodies are an immunoreactive fragment selected from the group consisting of Fv, Fab, Fab', or F(ab')2 fragments.

AMENDED SHEET

52

10. The composition according to claim 9, wherein the variable regions of the Fv fragment are linked by disulfide bonds or by a peptide linker.

11. The composition according to claim 1, wherein the epitope of myelin is a myelin sheath epitope selected from the list including galactocerebroside (GalC), O4, Myelin Oligodendrocyte Glycoprotein (MOG), Myelin Associated Glycoprotein (MAG), NOGO, NI220, NI-35/250, or arretin.

12. The composition according to claim 1, wherein the complement proteins or fragments thereof include the C3 component or a fragment, variant, analog, or chemical derivative thereof.

13. The composition according to claim 1, wherein the complement proteins or fragments thereof are derived from species different from that species to which it is administered.

14. The composition according to claim 1, wherein the complement proteins or fragments thereof are a physically distinct component from the antibody component.

15. The composition according to claim 1, wherein the complement proteins or fragments thereof are covalently or noncovalently attached directly to the antibody component, such that binding of the antibody to the surface of the myelin triggers the endogenous immune system attack.

16. The composition according to claim 1, further comprising growth factors and neurotrophic factors.

17. The composition according to claim 16, wherein the neurotrophin is NT-3.

18. The composition according to claim 16, wherein the neurotrophin is FGF-1.

19. The pharmaceutical composition according to any of claim 1, further comprising a physiologically acceptable carrier.

20. A use of a composition, comprising therapeutically effective amounts of the following:
(a) one or more complement-fixing antibodies or fragments thereof, which specifically bind to an epitope of myelin in mammals; and
(b) one or more complement proteins or fragments thereof;
wherein the binding of said antibodies to myelin causes transient disruption and/or transient demyelination of myelin, to promote neuron repair and/or regeneration in a subject by the disruption and/or demyelination of myelin in mammals.

21. The use according to claim 20, wherein the subject is mammalian.

22. The use according to claim 21, wherein the subject is human.

AMENDED SHEET

23. The use according to claim 22, wherein the subject is requiring neuron repair and/or regeneration due to neuron dysfunction.

24. The use according to claim 23, wherein the neuron dysfunction is caused by injury or trauma to the CNS.

25. The use according to claim 23, wherein the injury is a spinal cord injury.

26. The use according to claim 23, wherein the neuron dysfunction is caused by disease.

27. The use according to claim 26, wherein the disease is selected from the group consisting of Alzheimer's disease and Parkinson's disease.

28. The use according to claim 22, wherein the condition is chronic.

29. A use of a composition, comprising therapeutically effective amounts of the following:
(a) one or more complement-fixing antibodies or fragments thereof, which specifically bind to an epitope of myelin; and
(b) one or more complement proteins or fragments thereof;
wherein the binding of said antibodies to myelin causes transient disruption and/or transient demyelination of myelin, to generate an environment within the mammalian CNS that is permissive to growth of transplanted cells.

30. A use of one or more complement-fixing antibodies or fragments thereof, which specifically bind to an epitope of myelin, and which are labeled, to enable the detection and monitoring of the use of any of the compositions in claim 8.

31. A method of promoting neuron repair and/or regeneration in a subject by the transient disruption and/or transient demyelination of myelin, comprising contacting said neuron with therapeutically effective amounts of the following:
(a) one or more complement-fixing antibodies or fragments thereof, which specifically bind to an epitope of myelin in mammals; and
(b) one or more complement proteins or fragments thereof;
wherein the binding of said antibodies to myelin causes disruption and/or demyelination of myelin in mammals.

32. The method of claim 31, wherein one or more growth factors are added in an appropriate sequence to promote regrowth or regeneration.

33. The method of claim 31, wherein the subject is mammalian.

34. The method of claim 33, wherein the subject is human.

AMENDED SHEET

35. A kit comprising the components necessary to work the method of claim 31.